

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark
Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year)

19 November 1997 (19.11.97)

International application No.

PCT/US97/04398

Applicant's or agent's file reference

2977.1PCT

International filing date (day/month/year)

19 March 1997 (19.03.97)

Priority date (day/month/year)

19 March 1996 (19.03.96)

Applicant

HERRON, James, A. et al

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

29 September 1997 (29.09.97)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Ting Zhao

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

6
REC'D 22 JUN 1998

WIPO

PCT

Applicant's or agent's file reference 2977.1PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US97/04398	International filing date (day/month/year) 19 MARCH 1997	Priority date (day/month/year) 19 MARCH 1996
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant UNIVERSITY OF UTAH RESEARCH FOUNDATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets.
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
 These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 29 SEPTEMBER 1997	Date of completion of this report 03 JUNE 1998
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer John Ngo Telephone No. (703) 305-0297

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/04398

I. Basis of the report

1. This report has been drawn on the basis of *(Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain*

☒ the international application as originally filed.

☒ the description, pages 1-27, as originally filed.

pages NONE, filed with the demand.

pages NONE, filed with the letter of _____.

pages _____, filed with the letter of _____.

☒ the claims, Nos. 1-19, as originally filed.

Nos. NONE, as amended under Article 19.

Nos. NONE, filed with the demand.

Nos. NONE, filed with the letter of _____.

Nos. _____, filed with the letter of _____.

☒ the drawings, sheets/~~fig~~ 1-13, as originally filed.

sheets/~~fig~~ NONE, filed with the demand.

sheets/~~fig~~ NONE, filed with the letter of _____.

sheets/~~fig~~ _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☒ the description, pages None.

☒ the claims, Nos. None.

☒ the drawings, sheets/~~fig~~ None.

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the ~~Supplemental Box~~ Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/04398

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. STATEMENT**

Novelty (N)	Claims	<u>1-17 and 19</u>	YES
	Claims	<u>18</u>	NO
Inventive Step (IS)	Claims	<u>1-12, 15-17 and 19</u>	YES
	Claims	<u>13, 14 and 18</u>	NO
Industrial Applicability (IA)	Claims	<u>1-19</u>	YES
	Claims	<u>None</u>	NO

2. CITATIONS AND EXPLANATIONS

Claim 18 lacks novelty under PCT Article 33(2) as being anticipated by Sutherland et al.

Claims 13 and 14 lack an inventive step under PCT Article 33(3) as being obvious over Sutherland et al. It would have been obvious to a person having ordinary skill in the art to use lenses to couple light into a waveguide and transmitting light out of a waveguide since it is well known in the art to do so.

Claim 13 lacks an inventive step under PCT Article 33(3) as being obvious over Dahne et al. It would have been obvious to a person of ordinary skill in the art to use lenses to couple light into and transmitting light out of a waveguide since it is well known in the art to do so.

Claim 13 lacks an inventive step under PCT Article 33(3) as being obvious over Arego et al. It would have been obvious to a person of ordinary skill in the art to use lenses to couple light into and transmitting light out of a waveguide since it is well known in the art to do so.

----- NEW CITATIONS -----

NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

CLASSIFICATION:

The International Patent Classification (IPC) and/or the National classification are as listed below:

IPC(6): G01N 21/00, 33/552, 33/72; G02B 6/26, 6/10 and US Cl.: 422/82.11; 385/12, 15, 33, 37, 130, 146

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/04398

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G01N 21/00, 33/552, 33/72; G02B 6/26, 6/10

US CL : 422/82.11; 385/12, 15, 33, 37, 130, 146

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 422/82.11, 82.05; 436/63; 385/12, 15, 33, 37, 129, 130, 141, 146

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS. Search term: sensor, fluid, liquid, waveguide.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X/Y	US 4,818,710 A (Sutherland et al) 4 April 1989, See Figs. 2 and 4a-5.	18/13,14
X,P	US 5,512,492 A (Herron et al) 30 April 1996, see the entire document.	18 and 19
X	US 4,746,179 A (Dahne et al) 24 May 1988, Figs. 2 and 3.	13
X	US 5,202,950 A (Arego et al) 13 April 1993, Figs. 4 and 5.	13
A	US 5,064,619 A (Finlan) 12 Nov. 1991, see the entire document.	1-12 and 16-19
A	US 3,490,847 A (Berz et al) 20 Jan. 1970, see the entire document.	13-15



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T*	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z*	document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means		
P document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

02 JULY 1997

Date of mailing of the international search report

15 JUL 1997

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JOHN NGO

Telephone No. (703) 308-0297

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/04398

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☒ No protest accompanied the payment of additional search fees.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-12 and 16-19, drawn to a biosensor, classified in class 385, subclass 12.

Group II, claim(s) 13-15, drawn to a waveguide, classified in class 385, subclass 130.

The inventions listed as Groups I and II do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: features such as "reservoirs for containing biological liquid", "metallic walls", "ports for oscillating liquid" are ~~fully~~ included in group I, features such as "front ramp", "rear ramp", and "a mean angle" are only included in group II.